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The Busy Body

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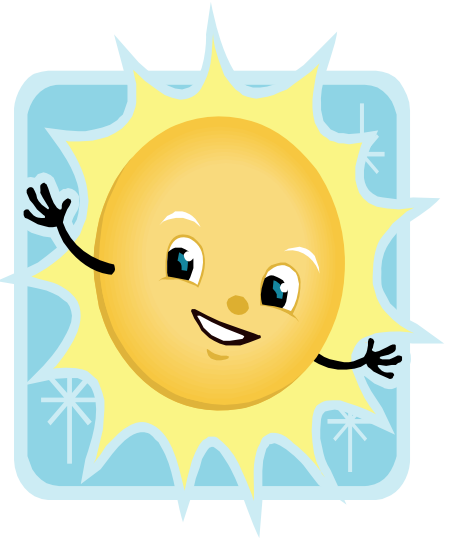


Staying Cool in the Summer Heat

With temperatures now consistently remaining above the century mark it's imperative for staff, and children, to be mindful while playing outdoors. Maintaining proper body temperatures is critical for children playing in the summer heat.

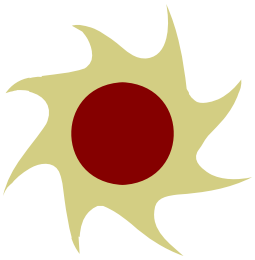
During exercise the muscles contract, producing large amounts of heat (Note: the higher the intensity of exercise the more heat that is produced). Additionally, environmental heat can be absorbed and add to the body's heat load. When considering Arizona summers, this is especially crucial.

To cool the body temperature, the body first dispels the heat through sweat. Heat from the skin causes the sweat to be converted from a liquid to a vapor. Water is the main constituent of sweat, and through its evaporation, it subsequently cools the body. Unfortunately, the summer heat mixed with exercise can cause sweat to drop off the skin without vaporizing. Only the sweat that evaporates has a cooling effect. This may cause a greater sweat rate.

In addition to the body's natural cooling system, it's essential that children, while exercising outdoors, intake the proper amount of fluids. This will help to replace the copious fluids that are lost through sweat.

Children need special consideration while exercising in the heat. When compared to adults, children may produce more internal heat during exercise, do not have as great a sweating capacity, and have a reduced capacity to transport internal heat to the skin. These factors may increase a child's risk for heat-related illness.

Children may get busy and forget to drink enough water. Encourage children to consume water by offering it throughout the day.



Dehydration

Two of the prime heat-related, and potentially life-threatening, illnesses are heat exhaustion and heat stroke. Both may occur due to the body's inability to cool, and/or due to dehydration. Dehydration is simply a reduction of the body water to below the normal level of hydration; water output exceeds water intake.

The consequences of dehydration can be minimal to devastating.

Percent of water weight loss	*Consequences*
1	Thirst
2	Thirst, loss of appetite, vague discomfort, less energy available
4	Slow movement, lagging pace, flushed skin, apathy, nausea, emotional instability
6	Tingling in arms, hands, feet, stumbling, headache, increase in body temperature, pulse rate and breathing rate
8	Labored breathing, dizziness, speech problems, weakness, confusion
10	Spastic muscles, inability to balance, delirium, swollen tongue, failing renal function
15	Shriveled skin, inability to swallow, sunken eyes, painful urination, stiffened eyelids
20	Death

Keep an eye on children as they play, and pay attention to any warning signs of dehydration. Those include:

- √ Flushed face
- √ Dizziness
- √ Headache
- √ Weakness
- √ Dry mouth
- √ Feeling thirsty
- √ Can't urinate, or very small amount
- √ Muscle cramps
- √ Sleepiness
- √ Decreased coordination
- √ Impaired judgment

Also be aware of the warning signs of heat exhaustion and heat stroke, which are similar to dehydration: chills, goose pimples, tingling arms, dizziness, weakness, fatigue, mental disorientation, nausea, and headaches.

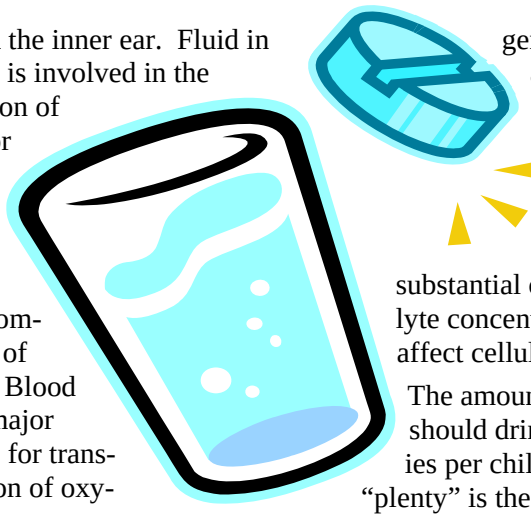
Here are some keys to remember to prevent dehydration and heat-related illnesses.

- → Drink plenty of fluids, before, during and after activities
- → In excessive sweating replenish lost electrolytes
- → Don't wait until the onset of thirst to hydrate
- → Play in the shade if possible
- → Play during cooler times of the day
- → Wear appropriate clothing (cool, light-colored, loose-fitting clothing that allows air circulation and sweat to evaporate)
- → Take breaks
- → Wear sunscreen. A sunburn may affect the body's ability to cool itself.

Hydration

Why is water so important, anyway? What does it do for the body? Besides replenishing the body, water provides many more less known functions.

- Water is the essential building material for cell protoplasm, the fundamental component of all living matter
- Water protects key body tissues such as the brain and spinal cord
- Water is essential to our senses. Hearing waves are transmitted by fluid in the inner ear. Fluid in the eye is involved in the reflection of light for proper vision
- Water is the main component of blood. Blood is the major vehicle for transportation of oxygen, nutrients, hormones and waste throughout the body
- Water is vital for the management of the balance of electrolytes in the body. Any substantial changes in the electrolyte concentration may negatively affect cellular function.



The amount of water a child should drink while outdoors varies per child. During hot weather, "plenty" is the key term.

Electrolytes

Often over looked when replacing fluids lost during sweating, is the importance of replenishing lost electrolytes. Electrolytes are substances which, in solution, conduct electric current. Extremely low levels of electrolytes may affect the body's functioning.

The body's electrolytes include: sodium, potassium, chloride, bicarbonate, sulfate, magnesium and calcium. Although all are important, the most notable are sodium, potassium and chloride.

Sodium is the principal electrolyte, and serves to help maintain normal body-fluid balance. In concurrence with other electrolytes, sodium aids nerve impulse transmission and muscle contraction. Deficiency symptoms include: muscle cramps, nausea, loss of appetite, dizziness and in extreme cases, seizures and coma.

Another major electrolyte, potassium, works closely with sodium and chloride in generating electrical impulses in the muscle and nerves. In addition, potassium also helps in the transportation and storage of sugar in the body. Deficiency symptoms include: loss of appetite, muscle cramps, apathy, and in extreme cases, irregular heartbeat.

Chloride, like potassium, works with sodium in body-water balance, and also helps in forming hydrochloric acid in the stomach, which is essential for certain digestive processes. Chloride deficiencies are rare, but may include vomiting.

The most convenient method to replace these lost minerals is through the diet. Sodium can be found in all the major food groups. High food sources of potassium include bananas, citrus fruits, fresh vegetables, milk, meat and fish. Chloride is distributed in a variety of foods, and its intake is closely related to sodium. Table salt is 60 percent chloride.

Additionally, sports drinks typically contain high amounts of electrolytes.

Reference (for information utilized for the entirety of the newsletter): Williams, Melvin H. (2005). *Nutrition for Health, Fitness and Sport, 7th ed.* New York, NY: McGraw-Hill.

Fun Activities with Water

If children are going to be playing outdoors, here are some fun, safe activities children can engage in with water.

- ☺ A water balloon toss. In pairs, children throw and catch a water balloon and back up a step with each successful catch.
- ☺ Water Relay. Create teams and place sponges in a large bucket of water. The children race to grab the saturated sponges and ring them out until they fill an empty, smaller bucket or bottle.
- ☺ Water Balloon Smash. Create teams and fill up balloons with water. The children place the balloons between their legs. They race to a finish line where they must sit on and burst their balloon before the next team member takes off.

You can find these, and other activities, at www.pittschools.org/aes/physed8.htm

Stay Cool in the Summer Sun!

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